discussion and a native skill in dialectic, which may sometimes have led him to seek too eagerly an argumentative triumph. But his writings bear evidence of the most extensive knowledge and of a conscientious examination of all sources of information, combined with independence of judgment and much subtlety of analysis. The high estimation in which his work is held may be judged of from the fact that all his books have been translated into French and German, and that the book on which he was engaged when the first symptoms of his fatal illness appeared—namely, that entitled "Darwin and after Darwin"—was published simultaneously in the United States and in this country under special conditions highly satisfactory to him.

Four years ago, in order to enjoy greater quietude and the facilities of the newly erected physiological laboratory of the University, Romanes removed from London and took up his residence with his wife and family in a fine old house in Oxford, facing the cathedral house of Christchurch. Here he has left his name and memory not only to be cherished by the numberless friends who mourn his early death, but to be carried forward to all future generations of Oxford scholars by the lectureship founded by him three years ago. Gladstone, Huxley, and Weismann have been the first three "Romanes lecturers" nominated successively by the founder. Hereafter it will be the duty of the University to elect annually a lecturer worthy to follow them.

Whilst it would be premature to claim for Romanes the merit of a great discoverer or originator in psychology or in the philosophy of evolution, it is nevertheless true that by his keen criticism, careful mastery of details, and great literary fertility, he has exercised a most important influence—stimulating the thought and research of others by his example and enthusiasm, and by those contests in the arena of the "reviews" with Wallace, Spencer, and Weismann, which have made his name so widely known.

It is not generally known, though a fact, that Romanes produced, in addition to his numerous scientific writings, a considerable volume of verse, which was printed for private distribution, as well as occasional poems. These poems deal with philosophic and emotional subjects, and are often of great beauty. It should be mentioned (although it is not possible here to record every fact of importance in his life) that Romanes was for some years honorary secretary of the Linnean Society of London, and a member of the Council of University College, London; he was Rede lecturer in the University of Cambridge, an honorary LL.D. of the University of Aberdeen, twice Croonian lecturer of the Royal Society of London, and Rosebery lecturer in the University of Edinburgh, when the courses delivered by him formed the substance of his book, "Darwin and after Darwin."

One word before this too hasty notice is concluded as to his personality. His unaffected good-nature, and almost boyish simplicity and gaiety of character, endeared him to every man and woman with whom he came into contact. He has left behind him numberless friends, not one enemy.

E. RAY LANKESTER.

NOTES.

THE fourth volume of that very useful work of reference, the "Minerva Jahrbuch," which goes to press in July next, is to contain an engraved portrait of Lord Kelvin. If the portrait is as good as that of L. Pasteur, which adorned the third volume, it will be well worth having.

WE regret to note the death of Dr. B. H. Hodgson, at the advanced age of ninety-five. He was elected into the Royal Society in 1877.

DR. S. J. HICKSON, Fellow of Downing College, Cambridge, has been appointed Professor of Zoology in the Owens College, Manchester.

COLONEL LAUSSEDAT has been elected an "Académicien libre" of the Paris Academy of Sciences, in succession to the late General Favé.

THE Société des Arts de Genève have opened a subscription list for the purpose of raising a fund to erect a bronze bust of the late M. Colladon somewhere in Geneva.

THE gold medal of the Linnean Society has this year been awarded to Prof. Haeckel, of Jena, for his important contributions to zoological science.

THE new buildings of St. Thomas's Hospital Medical School will be opened on Saturday, June 9, at 4 p.m., by the President, H.R.H. the Duke of Connaught.

A GENERAL meeting of the Federated Institution of Mining Engineers will be held in the rooms of the Institution of Civil Engineers on Thursday and Friday, June 7 and 8. Arrangements have been made for a visit to Messrs. Siemens Brothers and Co.'s works at Woolwich on Saturday, June 9.

AN international photographic exhibition will be held in Arnhem, Holland, from July 14 to 29. The exhibits will be divided into six classes, one of which will include scientific photographs. Mr. G. S. de Veer is the Secretary of the Exhibition Committee; his address is Velperwege 94, Arnhem, Holland.

THE annual meeting of the Photographic Convention of the United Kingdom will be held in Dublin in July. The President for the year will be Sir Howard Grubb, and the committee of reception includes, among others, the Earl of Rosse, Viscount Powerscourt, the Lord Mayor, and the Astronomer Royal of Ireland. The proceedings will open on Monday, July 9, with a reception and conversazione in the Museum of Science and Art.

IN these columns on March 8 and May 10, we noted the gigantic landslip that had occurred in the Gurhwal district in India, and blocked up the valley of the Bihri Ganga river. The disaster that was expected to result from this has happened. A Reuter's telegram reports that the dam has burst, and the immense volume of water that had been kept back has flooded the district, sweeping away villages, and causing the loss of about two hundred lives.

LAST year was a critical one in the history of the Zoological Society of Philadelphia. We learn from the twenty-second annual report that an effort was made early in the summer to raise a fund by private subscription for the purpose of meeting a large financial deficit. This, however, met with little success, and all hopes of saving the Garden of the Society had been given up, when the Commissioners, who hold the ground upon which the Garden is situated, asked from the City Councils a sum of 10,000 dollars for purposes of maintenance, in addition to the 5000 dollars which had for several years been granted. This sum was promptly voted, the Zoological Society placing in the hands of the Board of Education fifty thousand tickets for free admission of pupils of the public schools to the Garden. This liberal and broad-minded action has prevented the closing of the Garden and the dispersal of the collection.

IN the House of Commons, on Thursday last, Mr. Strachey asked the President of the Board of Agriculture whether it was proposed to repeat the experiment of transmitting the weather forecasts to telegraph offices in rural districts, for exhibition during the time of harvest; and, if so, what were the arrangements to be made for the purpose. In reply, Mr. Gardner said it was proposed to repeat the experiment of last year, and that the counties of Cambridge, Somerset, Carnarvon, the East Riding of Yorkshire, Haddington, and Ayr had been selected for the purpose. The forecasts will be despatched to rural telegraph offices at such periods as will suit the agricultural conditions of hay and corn harvest in the respective counties, and Mr. Gardner hoped that those interested in the matter would supply information as to the results of the experiment, so that it could be determined whether the system was of sufficient utility to justify its continuance and extension. The forecasts are, of course, prepared at the Meteorological Office, which has for many years issued hay harvest forecasts to a limited number of stations, and has had them properly checked by the recipients. The results of these forecasts are regularly published in the Reports of the Meteorological Council, and they show that the percentage of success has been remarkably good in nearly all the districts.

THE weather over these islands has continued very unseasonable during most of the past week; the maximum shade temperature readings have been as low as 55° in many parts, and below 50° at some of the northern stations, while on Tuesday morning, the 29th inst., the minimum shade temperature fell below freezing point in the Midland counties. On the 26th a deep depression was situated over Germany, and caused very stormy weather over the south of England; in London the wind blew from the north-north-west with great force during Saturday night, the pressure amounting to 11½ lbs. on the square foot at Greenwich. The fall of rain which accompanied this disturbance was very great. On the Kentish coast it amounted to over 2½ inches, and more than 3 inches fell at the Helder. Slight thunderstorms occurred in the Midland counties and southern parts of England in the early part of this week.

THE influence of ancient village communities on the map of England is made the subject of an interesting paper by Mr. H. T. Crofton in the last number of the *Journal* of the Manchester Geographical Society. Mr. Crofton reproduces a portion of the six-inch ordnance survey map with the parishes coloured, and thus brings out the curiously complicated manner in which the boundaries are drawn, and the frequency with which portions of one parish are scattered in isolated patches through the neighbouring parishes. In order to explain these curious forms he points out that the ancient village communities of the primitive Celtic people, with their complicated adjustment of arable and pasture land, were not wiped out by the Roman conquerors, but gradually assimilated to the new distribution of property. Thus, acquiring a recognised character, the lands of separate tribes or families retained their ancient names and groupings, and to the present day the parishes of Manchester and its neighbourhood bear witness in their irregular boundaries to the primitive customs of the pre-Roman inhabitants of the land. The question of county and parish boundaries is one so full of interest for the student of primitive populations, that he must be grateful to the proverbial conservativeness of parochial authorities; still, intending students in this interesting field would do well to set to their task speedily before the changing of the old order destroys landmarks which can never be restored.

THE report of the Hydrographer to the Admiralty, published a few days ago, describes the work performed under the direction of the Lords Commissioners of the Admiralty during last year, in the examination and charting of seas and coasts in various parts of the globe. The necessity for accurate surveys on a large scale is strikingly illustrated by the number of rocks and dangers to navigation annually discovered, this number being steadily on the increase, no less than 201, which it has been deemed necessary to notify by notices to mariners, having been reported during the year 1893. Of these, 26 rocks were reported by H.M. surveying vessels; 35 by others of H.M. ships; 22 by various British and foreign vessels; 13 were discovered by vessels striking on them; and 105 were reported by colonial and foreign Governments. Ten vessels were employed in the surveys during the year covered by the report—four on home and six on foreign stations. The English stations were Plymouth Sound, the south coast, east coast, west coast, and the east coast of Ireland. On the west coast of Newfoundland the portion surveyed comprises from Cape St. George to a point 16 miles eastward of Cape Anguille, nearly 100 miles of coastline. An area of about 500 square miles was closely sounded. Of this locality there is at present no chart in which the navigator can place any confidence, and the new work will be especially useful. As might have been expected, a certain number of uncharted dangers were discovered, and no fewer than nine rocks with a less depth of water than five fathoms over them were found round the shores of the bay. A plan of Isthmus Bay, on a scale of 6 inches to the mile, was also completed. Dr. Bassett-Smith accompanied H.M.S. *Egeria*, and during the sounding of the Macclesfield coral bank in the China Sea was enabled to obtain a very valuable collection of corals from the deeper slopes of the bank, special attention being paid to the zone lying between the depths of 30 to 40 fathoms, from which he was able to prepare a highly interesting report on his investigations. The collections have been sent to the British Museum. The Solomon Islands, Queensland, Tasmania and the New Hebrides, and the Mediterranean were also the centres of marine surveys during 1893. The marine survey of India was carried out under the direction of officers of the *Investigator*.

AN ethnographic expedition to the islands of Inishbofin and Inishshark, County Galway, was made by Dr. C. R. Browne in the autumn of last year, and the results of his observations, communicated to the Royal Irish Academy in November, have now been published. A similar expedition was made to the Aran Islands in 1892, and both were undertaken in connection with the Dublin Anthropometric Committee. These local investigations in selected parts of Ireland are as important as the results are interesting. The people visited, on the whole, much resemble the inhabitants on the opposite coast of Connemara, and their appearance testifies to a mixed origin. The average height is 5 ft. 6½ in., which falls short of the Irish mean stature as found by Gould, and the Anthropometric Committee of the British Association, by about two inches. Sight and hearing are very acute, and Dr. Browne says that the distance at which the islanders can make out a sail or a bird on the wing is amazing. The proportional measurements of the face and upper limb with reference to the stature differ in some respects, not only from those of the Aran islanders, but also from the accepted canons, and form the proportions obtained by Quetelet, Gould, and others, in their investigations on several European peoples. Though a large proportion of the marriages are consanguineous unions, the uniformity of strain does not appear to have produced any effect except a great similarity of appearance; no cases of malformation or congenital diseases are ascribed to it. Marriages are arranged by the parents from considerations of suitability of families, not, as in many other places, by money bargains. If the bridegroom be the eldest son, who usually inherits the parent's house, &c., the bride goes to live with his family. Sometimes, on the occasion of a wedding, "strawboys" go round with long straw masks on, and if they do not get either money or liquor will threaten to break the windows and furniture of the house. Many other customs are described by Dr. Browne, and his notes on the legendary lore of the islands will be read with interest. The Dublin Anthropological Laboratory is to be commended for extending its work by these local investigations.

The description of the external anatomy of the brain of a Chinaman, contributed to the current number (part lxv.) of *Brain*, by Mr. C. H. Bond, is noteworthy, for only seven Chinese brains had previously been reported upon. Several decided differences from what is looked upon as the normal are pointed out as existing in the Chinese brains. First of these stands out a greater prominence given to furrows running transversely as compared to those in the antero-posterior direction. As to convolutional complexity, the Chinese brains were up to the normal standard, and in the frontal lobes rather beyond the average. The weight of the brain studied by Mr. Bond was 1182 grammes, that is, 176 grammes less than the weight of an average male adult brain. The proportion of the cerebral hemispheres to the cerebellum was as 5 is to 1. In the case of the average man the proportion is 8½ to 1, and for the chimpanzee it is 5¾ to 1. It is pointed out that if the brain investigated was at all typical of the race to which it belonged, then the small size and weight of the cerebrum as compared to the cerebellum is a point worthy of special emphasis. The number which includes Mr. Bond's description also contains the presidential address to the Neurological Society, delivered by Dr. D. Ferrier, F.R.S., last January, his subject being "Recent Work on the Cerebellum and its Relations."

The current number of the *Journal de Physique* contains a discussion of the metals suitable for the manufacture of standards of length, from the pen of M. C. E. Guillaume. Those of iridio-platinum, originally proposed by M. H. Sainte-Claire Deville, have fulfilled all expectations as regards durability, but the price of the metals brings the cost of a metre rule up to about £400. The conditions to be fulfilled are a comparatively low price, hardness and good polish, constancy of length at a certain temperature, power of resisting moisture and ordinary laboratory chemicals, and, for large rules, a high modulus of elasticity. The condition of constancy excludes all alloys containing zinc. The metals studied by M. Guillaume were nickel, white bronze, aluminium bronze, and phosphor bronze. Ferro-nickel, although much less oxidisable than steel, and harder and twice as rigid as bronze, could not be used owing to its feeble resistance to the action of water. Bars of the above four metals were submitted to repeated heating in steam and cooling. A comparison with standard No. 17 of the Conservatoire gave a shortening of 0·3 μ (thousandths of a mm.) in the case of nickel, the amounts for the bronzes being 2, 5, and − 0·3 μ respectively. The nickel was lengthened to the same amount by magnetisation. Phosphor and aluminium bronze were blackened by the steam, and are therefore not suitable. White bronze (consisting of 35 parts nickel to 65 parts copper) was found suitable for engraving a scale on, though it might be attacked by traces of sulphur or chlorine. Contact with mercury only leads to amalgamation after several hours, thus showing a great superiority to silver. Nickel is, on the whole, the most suitable metal. But it is difficult to obtain bars of the commercial metal free from numerous small punctures. Until this difficulty is surmounted, an alloy of equal parts of nickel and copper may render good service at moderate cost.

"The Dangers of Milk" is the title of a useful little article in the April number of *Modern Medicine and Bacteriological Review*. Whilst the boiling or Pasteurisation of milk is advocated, it is pointed out that too much reliance must not be placed on this treatment as regards the entire removal of germs enabling the milk to be kept for any considerable time before use. Spores of bacilli may still be present, which, after some hours, may develop to such an extent that the bacilli may become so numerous as to render it acid and unfit for consumption. It is suggested that people entrusted with the feeding of infants on cow's milk should be supplied with litmus paper, by which the acidity of the milk should be tested before use. An interesting account will also be found in this number of a paper by Dr. Ledoux-Lebard, on the action of light on the diphtheria bacillus. Amongst the conclusions arrived at by the author, we read that whilst the direct rays of the sun arrest the development of these germs, and sterilise the culture medium in a few days, diffused light has no bactericidal action on diphtheria bacilli in *neutralised bouillon*, but has a markedly deleterious action on them when immersed in *distilled water*. Hitherto it has been found that micro-organisms are less sensitive to light in water than in culture media, but possibly Dr. Lebard's results may be explained by the fact that he used *distilled* water, which is well known to act prejudicially in itself on many bacteria.

On the occasion of the celebration, last May, of the 150th anniversary of the foundation of the American Philosophical Society, Mr. S. H. Scudder presented a paper entitled "Tertiary Tipulidæ, with special reference to those of Florissant, Colorado." This important memoir has now been issued separately, and it will direct attention to the remarkably well preserved and numerous remains of insects, found at Florissant, in a lake deposit supposed to be of Oligocene age. Several hundred specimens of the family of "Crane-flies" or "Daddy Long-legs" have been collected there, and the nine finely drawn plates which accompany the paper completely represent many species. It is remarked that previous illustrations of fossil Tipulidæ rarely represent more than the wings, so that, merely as illustrations of fossil remains, Mr. Scudder's plates far surpass all that have gone before. The new forms described in the memoir number twenty-nine species of ten genera of Limnobinæ, and twenty-two species of five genera of Tipulidæ. No such extensive addition to tertiary Tipulidæ has been made since Loew first indicated the riches of the amber fauna of Europe. A careful study of the remains leads the author to several conclusions, some of which can be expressed as follows:—(1) The general facies of the Tipulid fauna of the western territory is American, and agrees best with the fauna of about the same latitude in America. (2) All the species are extinct, and though the Gosinte Lake and the ancient lacustrine basin of Florissant were but little removed from each other, and the deposits of both are presumably of Oligocene age, not a single instance is known of the occurrence of the same species in the two basins. (3) No species are identical with any of the few European tertiary Tipulidæ. (4) Of the fifteen genera described, eight are not yet recognised among the living, these genera including about one-third of the species. (5) With one exception all the existing genera which are represented in the American tertiaries are genera common to the north temperate zone of Europe and America, and are generally confined to these regions.

The second part of "The Natural History of Plants," from the German of Prof. Kerner, by Dr. F. W. Oliver, has just been published by Messrs. Blackie and Son.

The report of the Trustees of the South African Museum for the year 1893 has been distributed. The accessions to the collection during the year included 367 new species, of which two were mammals, eight reptiles, three fishes, six molluscs, and 348 insects.

The paper on "The Genesis of the Chalk," read by Dr. W. F. Hume before the Geologists' Association in January last, appears in the May number of the Association's *Proceedings*, together with the presidential address on "Geology in the Field and in the Study," delivered by Mr. H. B. Woodward.

THE late Prof. Milnes Marshall's little book on "The Frog," known to be a most concise introduction to anatomy, histology, and embryology, has reached a fifth edition. A note by Dr. Hurst informs us that the preparation of this edition for the printer was Prof. Marshall's last professional act, and was completed only a week before his death.

THE Marlborough College Natural History Society, founded just thirty years ago, has issued its report for 1893. The report chronicles the work of the sections of astronomy, botany, entomology, geology, microscopy, zoology, and meteorology during the year. It also includes an anthropometrical report containing the statistics of weights and measurements of members of the school. This is a feature that other societies in our schools and colleges would do well to take up, for the anthropological information thus collected is very useful.

IT is well known that many amateur photographers send their negatives to professionals to be printed. The Indian amateur, however, has usually to make his own prints, as there are few professional photographers in the far East who undertake the work. To make up for this dearth of available assistance, the *Journal of the Photographic Society of India* reports that the society of which it is the official organ have established a printing department for its members. Though such a departure might be adversely criticised in the case of a British society, it may be pardonable in India.

VOLUMES viii. and ix. of the *Annalen der k. k. Universitäts-Sternwarte in Wien*, edited by Prof. E. Weiss, have recently been issued. The former volume contains the results of meridian observations made at Vienna Observatory during 1886 and 1887, of comet observations made between 1890 and 1892, and of observations for positions of planets, comets, and comparison stars. In vol. ix. are given the zone observations made by Dr. Palisa during 1884 in connection with the Vienna star catalogue. This volume also includes the results of observations of planets during 1890, and meteorological observations made in 1887 and 1888.

MESSRS. J. AND A. CHURCHILL have published a new edition of "Materia Medica, Pharmacology, and Therapeutics," by Dr. C. D. F. Phillips. The work originally appeared in 1882, but was out of print for some years. Dr. Phillips has made numerous emendations and additions in order to bring his book in touch with the present state of knowledge of the physiological and therapeutical actions of remedies. More than usual space has also been devoted to pharmacy. The present volume deals with the actions of inorganic substances, and a new edition of its companion volume on the vegetable, animal, and organic compounds will be published to supplement it.

THE tidal streams round the Isle of Wight can be found at any hour on any day by means of an arrangement devised by Mr. F. Howard Collins, and published by Mr. J. D. Potter. A plan of the island, with arrows showing the directions of tidal currents, is drawn in each of twelve sections of a cardboard circle pivoted at the centre. This circle is capable of being moved round inside another, upon which the hours from one to twelve are marked. When the inner circle has been set to the time on the outer one at which high water occurs at Portsmouth, the directions of the arrows opposite any hour on the latter show the direction of the tide at that hour. Yachtsmen in the Solent and round the Isle of Wight should find the chart useful.

IN the June number of *Natural Science* Dr. A. R. Wallace compares the Palæarctic and Nearctic regions, as regards the families and genera of their mammalia and birds. It has been suggested by several zoologists that these two regions should be united so as to form one new region—the Holarctic—co-extensive with the extra-tropical northern hemisphere. Dr. Wallace finds, however, that the two regions, instead of being so much alike that they should be united to form a single region, are really exceptionally distinct, and that their union would not be an improvement upon Dr. Sclater's system of zoological regions. The journal also contains articles on the distinguishing of sex in ammonites, by Messrs. S. S. Buckman and F. A. Bather; problems in experimental psychology, by Prof. E. B. Titchener; the mode of formation of ground ice, by Mr. R. D. Oldham; the significance of the bird's foot, by Mr. F. Finn; and cell-division, by Mr. M. D. Hill.

THE new series of *Science Gossip* is really an improvement upon the old one. Each month pages are specially devoted to astronomy, notes and queries, science abroad, zoology, geology, botany, and transactions of scientific societies. The articles in the June number include one by Mr. A. T. Tait, on the beautiful dendritic crystals sometimes found on the pages of books. The author remarks that he has never seen a specimen of these arborescent crystals in a book older than 1835 or younger than 1882, and that rather more than twenty years are usually required for their fullest development. He has examined a large number of volumes of foreign origin, but has never discovered any of the crystals upon their pages. The crystals are supposed to owe their formation to chemical action set up by the accidental deposition of minute fragments of copper upon the surfaces of paper during the processes of manufacture or printing, so it is suggested that differences between British methods of paper-making and printing, and those in vogue in America and on the continent, may account for the absence of the crystals.

IN a communication to the Société Chimique, M. Girard explains the interesting fact that when wood charcoal is heated with sulphuric acid, for the purpose of preparing sulphur dioxide, colourless crystals are frequently observed to form. M. Terreil has previously pointed out the occurrence, but without offering any evidence as to its nature. M. Girard now finds that if excess of carbon is used, and the operation is continued until the complete cessation of the evolution of gas, so large a sublimate of the crystals is obtained as to cover the sides and neck of the flask, and to almost obstruct the delivery tube. In order to purify the substance it is only necessary to dissolve it in water, boil until sulphur dioxide is expelled, precipitate any sulphuric acid by the necessary quantity of barium chloride, evaporate to dryness, and recrystallise from alcohol. The well-formed colourless crystals obtained are found to consist of pyromellitic acid, $C_6H_2(COOH)_4$, one of the isomeric tetrabasic acids of the benzene series, and the acid whose anhydride is produced when mellitic acid is heated. Mellitic acid is a substance well known from the fact of its occurrence in combination with alumina in honey-stone. The crystals of pyromellitic acid obtained in the interesting manner above indicated are soluble without decomposition both in boiling sulphuric and boiling nitric acids. Their aqueous solution reacts like an ordinary dilute acid, decomposing carbonates with effervescence. The crystals themselves are efflorescent in the air, and upon heating they volatilise with production of a sublimate of long needles, melting about 280°, and which prove to be pyromellitic anhydride. M. Girard further shows that when sulphuric acid reacts upon wood charcoal which has previously been well calcined at a white heat, or upon coke, no production of pyromellitic acid is observed. On the other hand, substances richer in hydrogen and oxygen than wood charcoal, such as the denser varieties of cellulose, yield it in relatively large quantities. It appears, therefore, to be produced by the action of sulphuric acid upon that portion of the wood charcoal which is least carbonised and retains a larger proportion of hydrogen and oxygen. Now it is well known that pyromellitic acid may be obtained by the action of sulphuric acid upon mellitic acid. M. Verneuil has recently shown, while these experiments of M. Girard were in progress, that when sulphuric acid acts upon wood charcoal a certain amount of mellitic acid is produced. It is therefore practically certain that by the action of sulphuric acid upon wood charcoal, in addition to the production of the gaseous dioxides of sulphur and carbon, mellitic acid is produced which in turn is converted by a further quantity of sulphuric acid into pyromellitic acid, and the latter is deposited in crystals in the cooler portion of the flask in which the reaction occurs.

THE additions to the Zoological Society's Gardens during the past week include two Brown Capuchins (*Cebus fatuellus*, ♂♂) from Guiana, presented respectively by Mr. Charles Gordon Frazer and Miss Florence Marryat; two Four-horned Antelopes (*Tetraceros quadricornis*, ♂♂), from India, presented by Mr. W. F. Sinclair; four common Swans (*Cygnus olor*), British, presented by Lord Braybrooke; two Jameson's Gulls (*Larus novæ-hollandiæ*), from Australia, presented by Sir Ferdinand von Mueller, K.C.M.G.; two Hoary Snakes (*Coronella cana*), a Crossed Snake (*Psammophis crucifer*), an Infernal Snake (*Boodon infernalis*), from South Africa, presented by Mr. J. E. Matcham; two Natterjack Toads (*Bufo calamita*), British, presented by Miss Peckham; three Stock Doves (*Columba œnas*), British, presented by Mr. Lionel A. Williams; a yellow-cheeked Amazon (*Chrysotis autumnalis*), from Honduras, two Alligator Terrapins (*Chelydra serpentina*), from North America, deposited; a White-bellied Sea Eagle (*Haliætus leucogaster*), two Wonga-Wonga Pigeons (*Leucosarcia picata*), from Australia, purchased; a Reindeer (*Rangifer tarandus*, ♀), a Japanese Deer (*Cevous sika*, ♀), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

SUN-SPOTS AND WEATHER.—The first part of vol. vi. of "Indian Meteorological Memoirs" (Calcutta, 1894) contains a paper by Mr. W. L. Dallas, Assistant Meteorological Reporter to the Government of India, on the relation between sun-spots and weather, as shown by meteorological observations made on board ships in the Bay of Bengal during the years 1856 to 1879. The region selected offered peculiar advantages for such inquiry. The annual periodic changes in it are small, and the aperiodic changes are very slight. There is also comparatively little horizontal air motion, and, being a sea surface, the area is not liable to the sudden changes which affect a land observatory, and result from irregularities in the elevation of the land surrounding an observatory. The discussion of the pressure observations shows that there are certain points of similarity between barometer readings and the number of spots on the sun. The number of years during which the number of sun-spots exceeded the normal average coincides with the number of years during which the pressure was below the average, and *vice versâ*, while the maximum pressure differences, whether above or below the average, occur one year after the maximum sun-spot variations in both directions. The same general agreement is disclosed by the discussion of temperature observations, but here again there is the same want of exact relation. In the case of pressure the curves show that a defect of pressure prevailed during the years in which the relative number of spots was excessive; and an excess of pressure during the time they were at or about their minimum. So in temperature, it appears from Mr. Dallas' investigation, that there exists a general defect when the number of spots is low, and a general excess when the number of spots is high. The indications are, therefore, that years of maxima and minima in a solar cycle are also years of maximum and minimum solar radiation.

Another paper on sun-spots and weather has also recently been received (*Bulletin de la Société les Amis des Sciences et Arts de Rochechouart*, 1894), the author being Prof. J. P. O'Reilly. By extracts from the annals of Ireland (*Annala Proghacta Eireann*) and those of Ulster (*Annala Uladh*), it is shown that remarkable years of dryness and of cold in Ireland and in Europe are connected with the cycle of solar activity.

EPHEMERIS FOR TEMPEL'S COMET.—The following positions are extracted from the search ephemeris for Tempel's comet, given by M. Schulhof in *Astr. Nach.* No. 3219:—

Ephemeris for Paris Midnight.

1894.		R.A.		Decl.
		° ′ ″		° ′
June 2	...	1 0 16	...	S. 0 22·8
4	...	5 58	...	S. 0 3·9
6	...	11 37	...	N. 0 14·5
8	...	17 11	...	0 32·3
10	...	22 41	...	0 49·6
12	...	28 8	...	1 6·3
14	...	33 31	...	1 22·4
16	...	38 49	...	1 37·9

The comet is not in a good position for observation, but it may possibly be picked up in the east shortly before sunrise.

JUPITER'S SATELLITES IN 1664.—Under this head we reprinted, on February 1, a letter from the New York *Nation* upon a supposed observation of five satellites of Jupiter, made by John Winthrop in 1664. The note led Mr. Frank H. Clutz to determine whether there was any "fixt starre with which Jupiter might at that tyme be in neare conjunction" (*Johns Hopkins University Circular*, May). He finds that the date of observation in our present reckoning was August 16, 1664, and on that date the star B.A.C. 6448 (R.A. 18h. 46m. 55·6s. Decl. − 23° 21′ 33″·04) was at a distance from Jupiter of about 10′·5, which is approximately the distance that the outer satellite may reach. In brightness the star is about the same as the three smaller satellites—between the sixth and seventh magnitudes. Mr. Clutz thinks, therefore, that this star was the object which Winthrop took for a fifth satellite.

ANNIVERSARY MEETING OF THE ROYAL GEOGRAPHICAL SOCIETY.

THE report of the Council of the Royal Geographical Society was presented at the annual meeting on May 28. The total number of Fellows at May 1 was 3775, a net increase of 29 during the year.

The President and Council for the ensuing year were ballotted for and elected. The principal changes are the retirement of the honorary secretary, Mr. D. W. Freshfield, and the retirement from the Council by rotation of Mr. Francis Galton, Generals Sir W. D. Jervois, J. T. Walker, and Sir Charles Wilson, and Mr. Delmar Morgan. Mr. Clements R. Markham was re-elected as President, the Hon. G. N. Curzon was added to the list of Vice-Presidents, Sir John Kirk was elected Foreign Secretary, and Major Leonard Darwin to co-operate with Mr. H. Seebohm as Secretary. The following new Councillors were elected:—Dr. Robert Brown, Right Hon. Hugh Childers, General Goodenough, Lord Lamington, Admiral A. H. Markham, Admiral E. H. Seymour, and Colonel J. K. Trotter.

The Society's medals were presented in the absence of their recipients, Captain Bower and M. Reclus; the minor awards, already announced in NATURE, were also given, and a series of educational prizes to students from the training colleges.

The President then delivered his annual address, reverting from the recent custom of dealing with the progress of geography during the year to the earlier practice of devoting special attention to some prominent features of exploration.

The greater part of the address was devoted to the polar expeditions of the present year, the facts regarding which have already appeared in NATURE. Mr. Markham is a high authority on Arctic travel, and his views will carry much weight. He professes a strong preference for large expeditions organised by government, and commanded by naval officers, believing that men combining high scientific attainments, great experience of ice-navigation, and the rare qualities of a leader of men, all of which are necessary for a great polar